

# 2

Science Standards  
2.2.e. and 2.2.f.

Supports  
ELA Standard:  
Reading 2.1.10.



## Student Workbook

California Education and the Environment Initiative



# Flowering Plants in Our Changing Environment

## California Education and the Environment Initiative

Approved by the California State Board of Education, 2010

### The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency  
California Natural Resources Agency  
Office of the Secretary of Education  
California State Board of Education  
California Department of Education  
California Integrated Waste Management Board

### Key Leadership for the Education and Environment Initiative:

**Linda Adams**, Secretary, California Environmental Protection Agency  
**Patty Zwarts**, Deputy Secretary for Policy and Legislation, California Environmental Protection Agency  
**Andrea Lewis**, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency  
**Mark Leary**, Executive Director, California Integrated Waste Management Board  
**Mindy Fox**, Director, Office of Education and the Environment, California Integrated Waste Management Board

### Key Partners:

Special thanks to **Heal the Bay**, sponsor of the EEI law, for their partnership and participation in reviewing portions of the EEI curriculum.

Valuable assistance with maps, photos, videos and design was provided by the **National Geographic Society** under a contract with the State of California.

### Office of Education and the Environment

1001 I Street • Sacramento, California 95812 • (916) 341-6769  
<http://www.calepa.ca.gov/Education/EEI/>

© Copyright 2010 by the State of California  
All rights reserved.

This publication, or parts thereof, may not be used or reproduced without permission from the  
Office of Education and the Environment.

These materials may be reproduced by teachers for educational purposes.





**Lesson 1    Flowers to Fruit**

Parts That Help an Orange Tree Reproduce. . . . . 2

**Lesson 2    People Depend on Plant Reproduction**

None required for this lesson.

**Lesson 3    Ecosystems Help Plants Grow and Reproduce**

What a Joshua Tree Needs from the Desert. . . . . 3

**Lesson 4    Plants Change in a Changing Environment**

What Might Happen to the Plant? . . . . . 5

**Lesson 5    When People Change Plants' Habitats**

Things People Do That Stress Plants . . . . . 8  
Ways People Stress Plants . . . . . 10

## Lesson 1

**Instructions:** Draw four parts of an orange tree that help the plant reproduce. Label each part on the line below the picture.




Name: \_\_\_\_\_

**Instructions:** Read about the Joshua Tree and what it needs.



The Joshua tree grows in the sunny and dry Mojave Desert. Like all plants, it needs some water to survive. Its pointed leaves catch rainwater. Its roots gather water from the soil.

This strange tree grows well where the weather is hot in the summer and cold in the winter.



Its flowers smell strongly at night.

The smell attracts yucca moths. The moths pollinate the flowers as they visit them during the night.

They are the only insect that carries pollen to this flower.



Later, the flower turns into a fruit.

Animals eat some of the flat seeds.



Some seeds blow away and find a new place in the soil.

If they get warmth and rain soon, they sprout.

This may start a new group of Joshua trees.

Name: \_\_\_\_\_

**Instructions:** Answer the questions in the spaces provided. (5 points each)

1. Where do Joshua trees live? \_\_\_\_\_

\_\_\_\_\_

2. How do they get water? \_\_\_\_\_

\_\_\_\_\_

3. What kind of weather do they need to grow? \_\_\_\_\_

\_\_\_\_\_

4. Why do they need yucca moths? \_\_\_\_\_

\_\_\_\_\_

5. What happens if some of the flowers are not pollinated? \_\_\_\_\_

\_\_\_\_\_

6. What happens if there are fewer fruits? \_\_\_\_\_

\_\_\_\_\_

7. What will happen if there are fewer seeds? \_\_\_\_\_

\_\_\_\_\_

8. What happens if the seeds do not get the rain they need? \_\_\_\_\_

\_\_\_\_\_



Name: \_\_\_\_\_

**Instructions:** Complete the tasks in the space provided. (5 points)

**Change: Drought!**



Very little rain or snow has fallen for the last five years.  
The rocky soil is dry. The air is dry. It is a hot summer.

1. What might happen to the oak tree?  
Draw a picture and write a sentence about it.

Name: \_\_\_\_\_

**Instructions:** Complete the tasks in the space provided. (5 points)

**Change: Too Much Shade!**



Many tall trees grow over the blackberries.  
Now they do not get enough sunlight.

2. What might happen to the blackberry bushes?  
Draw a picture and write a sentence about it.



Name: \_\_\_\_\_

**Instructions:** Complete the tasks in the space provided. (5 points)

**Change: Frost!**



One night, the temperature drops below freezing. Frost covers the orange tree's flowers and fruit for hours.

3. What might happen to the orange tree?  
Draw a picture and write a sentence about it.

Name: \_\_\_\_\_

**Instructions:** Look at the pairs of photographs and answer the questions.  
(1 point each)

1. Look at **Driving Over Dune Plants**.

What is this person doing?

---

---

---

What can this do to the dune grass?

---

---

---

Why is this stressful for the plants?

---

---

---

2. Look at **Letting Weeds Take Over a Garden**.

What is happening in the first photograph? What is happening in the second photograph?

---

---

---

Name: \_\_\_\_\_

What can weeds do to the garden plants?

---

---

---

Why is this stressful for the plants?

---

---

---

3. Look at **Spraying to Kill Weeds**.

What is the farmer doing?

---

---

---

Why do the people need to be careful when they are spraying?

---

---

---

Why is weed killer stressful to the pine trees?

---

---

---



Name: \_\_\_\_\_

**Instructions:** Read each sentence. Select the best answer and write the number on the line. (1 point each)

Write the number 1 on the line of the first thing to happen.

Write the number 2 on the line of the second thing to happen.

Write the number 3 on the line of the third thing to happen.

1. Driving over dune plants.

\_\_\_\_\_ People ride over the dunes, breaking the dune grass.

\_\_\_\_\_ Sand blows away.

\_\_\_\_\_ Dune grass grows and holds down the sand.

2. Spraying to kill weeds.

\_\_\_\_\_ The weed killer hurts the pine trees, too.

\_\_\_\_\_ A farmer grows pine trees on a farm.

\_\_\_\_\_ The farmer sprays weed killer near the trees to keep weeds from growing.

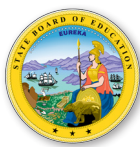
3. Pulling weeds in a garden.

\_\_\_\_\_ Girls plant some vegetable seed in a garden.

\_\_\_\_\_ Weeds grow taking up space in the garden.

\_\_\_\_\_ Girls pull out the weeds.





California STATE BOARD OF  
EDUCATION

---

## California Education and the Environment Initiative